

What is claimed is,

1. A motor having a rotating member rotatably supported through a bearing device on a base member of the motor, said bearing device including a shaft, a cylindrical outer ring member surrounding the shaft, and a plurality of balls of the first and the second rows interposed between the shaft and the outer ring member, the bearing device being characterized in that:

the outer ring member includes upper and lower portions and a central portion therebetween,

two rows of outer raceways for the first and the second row of balls are formed on the inner peripheral surface of the upper and lower portions of the outer ring member,

a squeeze member of the same material as that used in forming the outer ring member or of any other material of substantially the same coefficient of linear thermal expansion as that of the outer ring member is press fit around the outer periphery of the central portion of the outer ring member to elastically deform the outer ring member inwardly to form an inwardly protruding squeezed portion.

2. A motor having a rotating member rotatably supported through a bearing device on a base member of the motor, said bearing device including a shaft to which an

inner ring is fit slidably, a cylindrical outer ring member surrounding the shaft, a plurality of balls of the first row interposed between the first inner raceway formed on the outer periphery of the inner ring and the first outer raceway formed on the inner periphery of the outer ring member, a plurality of balls of the second row interposed between the second inner raceway formed directly on the outer periphery of the shaft and the second outer raceway formed on the inner periphery of the outer ring member, the bearing device being characterized in that:

the outer ring member includes upper and lower portions on the inner periphery of which is provided with the first and the second outer raceways respectively and a central portion therebetween,

a squeeze member of the same material as that used in forming the outer ring member or of any other material of substantially the same coefficient of linear thermal expansion as that of the outer ring member is press fit around the outer periphery of the central portion of the outer ring member to elastically deform the outer ring member inwardly to form an inwardly protruding squeezed portion,

wherein the inner ring is secured to the shaft with applying an appropriate pre-load thereon.

3. A motor having a rotating member rotatably

supported through a bearing device on a base member of the motor, said bearing device including a shaft, a cylindrical outer ring member surrounding the shaft, and a plurality of balls of the first and the second rows interposed between the shaft and the outer ring member, the bearing device being characterized in that:

the outer ring member includes upper and lower portions and a central portion therebetween,

two rows of outer raceways for the first and the second row of balls are formed on the inner peripheral surface of the upper and lower portions of the outer ring member,

a squeeze member of the same material as that used in forming the outer ring member or of any other material of substantially the same coefficient of linear thermal expansion as that of the outer ring member is press fit around the outer periphery of the central portion of the outer ring member to elastically deform the outer ring member inwardly to form an inwardly protruding squeezed portion,

wherein the shaft is secured on the base member to extend therefrom, and the central portion of the rotor or the rotating member is fit over the outer periphery of the outer ring member.

4. A motor having a rotating member rotatably

supported through a bearing device on a base member of the motor, said bearing device including a shaft, an inner ring fit slidably around the shaft, and a cylindrical outer ring member surrounding the shaft, a plurality of balls of the first row interposed between the first inner raceway formed on the outer periphery of the inner ring and the first outer raceway formed on the inner periphery of the outer ring member, and a plurality of balls of the second row interposed between the second inner raceway formed directly on the outer periphery of the shaft and the second outer raceway formed on the inner periphery of the outer ring member, the bearing device being characterized in that:

the outer ring member includes upper and lower portions on the inner periphery of which is provided with the first and the second outer raceways respectively and a central portion therebetween,

a squeeze member of the same material as that used in forming the outer ring member or of any other material of substantially the same coefficient of linear thermal expansion as that of the outer ring member is press fit around the outer periphery of the central portion of the outer ring member to elastically deform the outer ring member inwardly to form an inwardly protruding squeezed portion,

wherein the shaft is secured on the base member

to extend therefrom, and the central portion of the rotor or the rotating member is fit over the outer periphery of the outer ring member,

wherein appropriate pre-load is applied to said inner ring.

5. The motor according to any one of claims 1 to 4, characterized in that a thin walled reduced outer diameter portion is formed around the outer periphery of the central portion of the outer ring member of the bearing device, and the squeeze member is press fit around the reduced outer diameter portion.

6. The motor according to any one of claims 1 to 4, characterized in that the outer ring member of the bearing device includes the first and the second sleeve outer rings adjacent axially with each other, each of the first and the second outer raceways is formed on the inner surface of the first and the second sleeve outer rings respectively, thin walled reduced outer diameter stepped portions are formed around adjacent end portions of the first and the second sleeve outer rings, and the squeeze member is press fit around the reduced outer diameter stepped portions.

7. The motor according to any one of claims 1 to 4, characterized in that the outer ring member of the bearing device includes the first and the second sleeve outer rings adjacent axially with each other, each of the first and the

second outer raceways is formed on the inner surface of the first and the second sleeve outer rings respectively, thin walled reduced outer diameter stepped portions are formed around adjacent end portions of the first and the second sleeve outer rings, and each of the first and the second squeeze members is press fit around the reduced outer diameter stepped portions respectively.

8. The motor according to claim 1 or 2, characterized in that the squeeze member of the bearing device is a cylindrical body formed on the inner periphery of which with a thick walled reduced inner diameter portion having an inner diameter smaller than the outer diameter of the outer ring member, an axial width of the thick walled portion is smaller than the spacing between two rows of outer raceways, and the outer ring member is pressed by the reduced inner diameter portion of the cylindrical body.

9. The motor according to claim 1 or 2, characterized in that the squeeze member of the bearing device is a cylindrical body formed on the inner periphery of which with a thick walled reduced inner diameter portion having an inner diameter smaller than the outer diameter of the outer ring member, an axial width of the thick walled portion is smaller than the spacing between two rows of outer raceways, and the outer ring member is pressed by the reduced inner diameter portion of the cylindrical body,

wherein the shaft is secured on the base member to extend therefrom, and the central portion of the rotor or the rotating member is fit over the outer periphery of the cylindrical body.

10. The motor according to any one of claims 1 to 4, characterized in that the balls of the bearing device are formed of ceramic material.

11. The motor according to any one of claims 1 to 7, characterized in that the squeeze member is formed of a material lower in its linear thermal expansion than that of the outer ring member.